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AUTHOR Adams, Dennis M.
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ABSTRACT

The computer controlled visual media, particularly television, are becoming an increasingly powerful instrument for the manipulation of thought. Powerful visual images increasingly reflect and shape personal and external reality--politics being one such example--and it is crucial that the viewing public understand the nature of these media messages. The social institutions that are charged with broadly educative responsibilities need to encourage both intelligent programing and critical viewing skills, without dismissing the value of literature and reading. As print can assist visual literacy, so too can television help build more powerful literacy campaigns. The computer controlled interaction of print, video, and telecommunications has the potential for a powerful synergism that could invigorate the process of learning to read print. Neither the medium, the family, nor the school offers much in the way of visual literacy instruction. Specific activities that promote visual literacy include (1) moving children progressively from catalogs, newspapers and magazines, to television, allowing them to locate features that influence purchasing; (2) using home video recordings to show how metaphoric thinking can be found in the lyrics of some music and how symbols are used to make a statement; and (3) having children explore how common visualizations are created with computer based technology for television news. (HTH)

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# Critical Reading: Visual Skills

Dennis M. Adams
Associate Professor
Educational Studies

University of Northern Colorado

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Critical Reading: Visual Skills

A new set of computer controlled technological delivery systems are presenting graphic views of knowledge. With microcomputers, capable of executing one million instructions a second, linked up to graphic display screens (that have a resolution of about one million pixels) pictures are so sharp that students can build complex molecules and electronic circuits (designed with an accuracy impossible on standard video monitors).

For the schools to teach wisdom, as well as facts, requires teachers with a great deal of intellectual breadth and depth in not only their own discipline (the characteristics of effective instruction) but in the rapidly changing field of high technology. These visually intensive microworld images allow students to visulize phenomena and explore problems with greater intellectual depth than when concepts were presented only in abstract form. Ideas that were traditionally presented by mathematical formulas, print or speech can now be dealt with more effectively through images.

New computer-based communication devices present ideas through a medium that has been with us much longer than print -- pictures. From the earliest recorded human history until the 20th century visual images served as the primary means of conveying everything from religious values -- to politics -- to magic. We are now going back to imagery as a prime communication tool in much of our technology -- from broadcast TV to computers. The Apple Macintosh was the first widely distributed computer to use icons -- and Digital

Research Inc. has just brought out a "graphics environment manager" program that gives the IBM-PC a similar capability. (1) As far as television is concerned, about 75% of the U.S. population already receives most of its news through these fleeting images.

The resergence of imagery as an intellectual tool for understanding concepts and processes will not, as some claim, reduce the importance of print in a literacy intensive future environment. Quite the contrary, both forms of reading (print and visual imagery) will take on even greater importance -- this will be true for both the "real" and the educational world. The major change will be that print will no longer be held up as sacred -- and pictures will no longer be viewed as visual Muzak. The result will be a more active and rigorous process of teaching and learning.

One positive effect of video images that our society is finally starting to absorb is the notion of career opportunities for women. And having spent 30 years getting out of the house women are unlikely to go back in all day, even if they can use computers to telecommute to their jobs. Telecommuting may be alright for emergencies, like Mondays, but people like to be with people, AND children like to be with children . Changing family structures mean that schools will be with us for some time to come -- if for no other reason than that the majority of children have both parents working and need a secure and stimulating place to be during

1. GEM Icon Interface, Digital Research Inc. (DRI), Monterey, CA.

the day. But for our public education institutions to retain a status higher than sophisticated day-care centers, they will have to incorporate the new technology and help make teaching a more attractive occupation.

The New Electronic Imagery Requires Teachers With a High Degree Of Multiple Intelligences

Integrating the new electronic, visually intensive technology into the curriculum can help students learn with a personalized mix of print and visual images that can reach a broader range of learning styles. By using telecommunications technology to link a computer to a videodisc library, students can explore the great art and science museums of the world. They can examine the details of any image for as long as they wish and even summon up a print explanation.

Historically everything from architecture -- to clothing design -- to art has used visual imagery to help people understand symbolic or abstract material. It was discovered early on that the more active the imagery the more likely it is to be remembered. From the earliest prehistoric rock painting to medieval cathedrals, visual images have played a primary role in communications.

Our technology is taking us full circle today with visual images increasingly defining our relationships to each other, the universe, and the humanities. One example of images that have a great deal of control over our youth is music video -- although it was Aristotle, not MTV, that first explored the concept. Visual music is as undeniably exciting as it is disturbing. Along with

imagery, it is shaping our children's lives far more than print. And these new icons, both good and bad, are increasingly viewed as tools of thought. Some, like the fasination of our youth with music video, are having an impact on our cultural life -- glorifying a particular type of greed and sleaze. Both film and television are presenting children with the implicit belief that technology is the solution, rather than part of the equation.

Imagery can also function as a social conscience -- witness President Reagan's visit to the cemetary where S.S. Troopers were buried at Bitburg (where such a visit could soften the image of genocide). Balancing out a visit to a concentration camp was seen by many as symbolically trivilizing the agony of the fallen victims of the S.S. Teachers must be visually literate enough to thoughtfully explore these imagery based moral dilemmas.

The television coverage of the war in Vietnam is another example of the media presenting very measured images that could not help but raise a mass social conscience. No matter how pro administration or "hawkish" their presentation, the image of Americans causing death and destruction could not be avoided. Television was in Vietnam from the beginning to the end -- with the evening news visually defining the war's perameters. These images had an impact in ways we still scarcely know. (What is clear is that this imagery cannot be educationally dismissed.) During the war in Vietnam the schools avoided helping children understand either the role of television or the war. We learned nearly everything about

that conflict from TV. International politics and social history were learned much like John Foggerty's song -- "I know it's true 'cause I saw it on TV". At the time when we most needed schools they avoided the social issues and circled the covered wagons.

For the traditional public school system to avoid withering, they must take an active role in helping children interpret both moral dilemmas and television imagery. This isn't always easy. Only teachers who are very advanced in their own thinking can independently and adequately deal with these new literacy issues. There is no "teacher proof" drill and practice workbook to get across these important concepts so necessary for a new century. Teachers must act like any other professional and independently draw upon their own creativity, imagination and intelligence.

The Future: A Synthesis of Visual Imagery and Print

Many of the elementary school children we are working with today will graduate from college in the 21st century. Most of their working lives will be spent relearning how to swim in a sea of images. In this literacy intensive environment computer controlled visual systems will reason, draw conclusions, make judgements and interact through multi-sensory image rich programs. Visually powerful technology will become increasingly important. Print will no longer be seen as the only source of information and it will, oddly enough, increase in importance as it becomes a necessary adjunct to a visually enriched curriculum. Students are already using computers to access data, make decisions, and simulate

reality. To understand what they are doing, and why, children need to be both print and visually literate.

Non-human computer controlled communication devices will make use of the visual senses in "inputting" and "outputting" knowledge -- the same technology will force us to examine the similarities and differences between human and artificial intelligence. Both forms of "intelligences" will be forced to make decisions before all the information (either print or visual) is in and deal with rapidly changing information. Teachers need to be able to operate as decision-making professionals for our students to benefit from the information explosion and the availability of new technologies for delivering education.

Intuitive reasoning techniques (whether scientific or artistic) are coming to be recognized as crucial elements in the processing and applying of large amounts of unfamiliar pictoral and print information. The visual arts and science disciplines are coming together as the realization that science is an evolving process, rather than a single set of absolutes -- and art realizes that it has something to offer science in its effort to view reality differently. Both art and science require a flexibility of visual models. And technology, like the Apple Macintosh, makes as much use of visual imagery as it does print.

## Attracting Teachers Who Can Engage Students in a More Active Process of Thinking and Learning

A wide range of electronically based communication skills will be required of students as we experience an explosion of

image based creative thought. Hopefully we can at least control the direction of the blast as students move through an increasingly literacy intensive environment. Computer controlled technology can build programs based on the fact that many concepts can be learned best through a mix of images and print. Technology can be used to access, convey and tailor information in a manner and context that is most useable for the individual learner -- and provide us with new insights into human learning.

The public dissatisfaction with the entire public education system runs wide and deep. If technology can help us in addressing a multitude of intructional concerns than it is welcome. But can we attract the kind of teachers we need to work systematically at improving schools? During various historical periods our country has found itself in dire need of various occupations -- from engineers -- to physicians -- to soldiers. And the best of our youth has always responded to the need. Our dire need today is for our brightest and best students to dedicate themselves to becoming teachers.

Not only are we approaching a severe shortage, but a series of critical reports have pointed to a real need to revitalize teaching and learning. We will, however, never attract the best people by treating them like lower level bureaucrats who spend most of their time on sub-professional tasks. The new bureaucratization of teaching practice is a far cry from "excellence". Our brightest college students expect to choose careers where they can have a major role in setting policy and making professional

decisions about what they do and how they do it. They sense, rightly, that a professional person is trusted to operate independently, is well compensated, and makes important decisions. If technology can encourage improvements then it should be embraced, and if education is as important for the future as everyone says it is, then we have to change the image of teaching itself -- making it a more attractive choice.

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